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Composition of the araneofauna of the Cape Verde Islands

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Composition of the araneofauna of the Cape Verde Islands. - From the Cape Verde Islands 25 families of spiders with 116 species are recorded. About 50% of them have to be considered as endemics. Some of these species are related to others from the Palaearctic and the Afrotropical region. 52 species can be used for a biogeographical analysis. 25 out of the 116 Cape Verdean species are also found on the Makaronesian Islands, 22 of the 23 transgressing species occur in the Mediterranean area. 13 species have a cosmopolitan or circumtropical distribution and 11 species are found in the Afrotropical region. Only four species live exclusively on the Makaronesian Islands. Six of 11 Araneidae show a distribution extending over more than one continent. 17 species live as synanthropics, 12 of them are cosmopolitans. The most surprising result is the low number of Afrotropical species in comparison to the high amount of species also present on other Atlantic islands and in the Mediterranean region, although the Cape Verde Islands belong to the Afrotropical region.

Key-words: Cape Verde Islands - Makaronesian Islands - Araneida - biogeography - faunistics.

INTRODUCTION

The Cape Verde Islands belong to the tropics and consist of 9 inhabited and 6 uninhabited islands, situated between 15 and 17 degrees north, about 500 km west off the coast of Senegal. The distance to the Canary islands is about 1500 km, to Madeira about 2200 km and to the Açores about 2500 km. They are situated between the 20°C and the 25°C isotherm, which corresponds with the Canary Islands and the North African Mediterranean area. Biogeographically they represent the border between the Palearctic and the Afrotropical region. On account of the situation and the climate one can expect spiders living in the tropics, on the Makaronesian Islands (Canary Islands, Madeira, Açores), in the Mediterranean area of North Africa and in the area south of the Sahara.

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BERLAND (1936) was the first arachnologist who studied the relationships of the spider fauna of the Cape Verde Islands. 25 species out of the 48 known at that time were considered as endemic ones, 12 transgressing from the Mediterranean area, eight cosmopolitans and only three were known from the Afrotropical region. 46 years later ASSMUTH & GROH (1982) listed 67 species and classified 26 of them. 13 were mediterranean, seven cosmopolitan, four of Afrotropical and two of Makaronesian origin.

As a result of my 5 expeditions (1988–1995) the number of species increased to 116. Therefore a new biogeographical survey seems of interest, because we can consider more than twice as many species as BERLAND could.

MATERIAL AND METHODS

Collecting was exclusively done by hand because time was not sufficient for other methods. Immature spiders were brought alive to Germany to rear them to maturity. The spiders were preserved in 70% alcohol. Genitals were prepared by embedding them in polyvinyllaktophenol if necessary. The material was deposited in the Senckenbergmuseum, Frankfurt/M., Germany.

RESULTS

25 families containing 116 species are present on the Cape Verde Islands (table 1). The Families with the highest number of species are Theridiidae (18 species), Salticidae (16 species), Gnaphosidae (16 species) and Araneidae (11 species).

Out of 116 species 52 can be classified for biogeographical purposes. The remaining ones are either endemics or could not be named up to now. Some of the endemic species are related to species from the Palearctic region and from Senegal.

As table 2 shows, 26 Cape Verdean species live also on the Makaronesian Islands. 25 of them are inhabitants of the Canary Islands. Five of them belong to the Theridiidae.

21 of the 22 transgressing species occur in the Mediterranean area. Only *Neoscona moreli* (Vinson, 1863) has an exclusively tropical distribution. 13 species have a cosmopolitan or circumtropical distribution. Among the latter one could find in the past *Tegenaria domestica* (Clerck, 1757), but recent studies on the genitalia have shown that the *Tegenaria* of the Cape Verde Islands is another species living in the field and away from buildings (SCHMIDT *et al.*, 1994).

Five of the 11 Afrotropical species belong to the Araneidae. The Makaronesian species – living exclusively on one or more islands of the three archipelagos mentioned above – represent the smallest group of the Cape Verdean spiders. Four species belong to this group, all exist on the Canarian Islands. *Tidarren chevalieri* (Berland, 1936) was described from the Cape Verde Islands. According to WUNDERLICH (1991) *Tidarren hagemanni* Schmidt, 1956 (syn. *Tidarren pseudogibberosum* Schmidt, 1973) from the Canary Islands is a synonym of *T. chevalieri*. This judgement was made

without taking in account the male of this species, described not until 1994. The comparison between the males of *T. chevalieri* and *T. hagemanni* shows that the radix of the palpus in *T. hagemanni* is wider than in *T. chevalieri*. Therefore there is some doubt concerning this synonymy. The low number of Makaronesian species on the Cape Verde Islands confirms the statement of many entomologists that these islands do not belong to Makaronesia.

The synanthropic species (17) are the third biggest group of the Cape Verdean spiders. 12 of them are cosmopolitans. Only two are endemics.

The orb-weaving spiders are the most conspicuous ones of the Cape Verde Islands. Six of the Araneidae show a distribution extending over more than one continent.

DISCUSSION

Our study could confirm the statements given by BERLAND (1936) and ASSMUTH & GROH (1982) that about 50% of the spiders of the Cape Verde Islands might be considered as endemics and that the Mediterranean species are the richest group of the remaining ones. The number of the cosmopolitans has changed only slightly.

The most surprising result of this study is the low number of Afrotropical species in comparison to the high amount of the species present also on the other Atlantic islands and in the Mediterranean region. Although the number of Afrotropical species could be increased from three respectively four to 11 the relation between the Mediterranean and the Afrotropical group could only be altered from 4:1 respectively 3:1 to approximately 2:1.

TABLE 1

Families and species of the Cape Verdean spiders

Agelenidae	*Tegenaria domesticoides* Schmidt & Piepho
Araneidae	*Afraranea rufipalpis* (Lucas)
	Afraranea triangula (Keyserling)
	Argiope sector (Forskal)
	Cyclosa insulana (Costa)
	Cyrtophora citricola (Forskal)
	Meta maculata (Blackwall)
	Neoscona moreli (Vinson)
	Neoscona subfusca (C.L. Koch)
	Nephila s. senegalensis (Walckenaer)
	Pararaneus spectator (Karsch)
	Tetragnatha torrensis Schmidt & Piepho
Clubionidae	*Cheiracanthium furculatum* Karsch
	Cheiracanthium halophilum Schmidt & Piepho
	Cheiracanthium mildei C.L. Koch
	Clubiona chevalieri Berland
	Clubiona sp.
	? *Tecution* sp.

Dysderidae	*Dysdera vermicularis* Berland
	Dysdera sp.
Filistatidae	*Filistata* sp.
Gnaphosidae	*Australoechemus celer* Schmidt & Piepho
	Australoechemus oecobiophilus Schmidt & Piepho
	Berlandina atlantica (Dalmas)
	Berlandina nigromaculata (Blackwall)
	Berlandina piephoi Schmidt
	Camillina sp.
	Drassodes assimilatus (Blackwall)
	Haplodrassus sp. n.
	Micaria sp.
	Scotophaeus bifidus Schmidt & Krause
	Scotophaeus insularis Berland
	Scotophaeus jacksoni Berland
	Scotophaeus typhlus Schmidt & Piepho
	Setaphis atlantica (Berland)
	Setaphis fibulata (Berland)
	Zelotes salensis Berland
Hersiliidae	*Hersiliola simoni* (Cambridge)
	Hersiliola versicolor (Blackwall)
Heteropodidae	*Heteropoda venatoria* (Linné)
Linyphiidae	*Koinothrix pequenops* Jocqué
	Meioneta sp.
Loxoscelidae	*Loxosceles rufescens* (Dufour)
Lycosidae	*Allocosa caboverdensis* Schmidt & Krause
	Arctosa variana C.L. Koch
	Lycorma ferox (Lucas)
	Lycosa sp.
	Pardosa aquatilis Schmidt & Krause
	Tricca sp.
Oecobiidae	*Oecobius annulipes* Lucas
	Uroctea paivai (Blackwall)
Oonopidae	*Orchestina pavesii* (Simon)
Oxyopidae	*Oxyopes caboverdensis* Schmidt & Krause
	Oxyopes crassus Schmidt & Krause
	Oxyopes heterophthalmus Latreille
	Peucetia viridis (Blackwall)
Philodromidae	*Ebo patellidens* Levy
	Philodromus bicornutus Schmidt & Krause
	Philodromus petrobius Schmidt & Krause
	Thanatus atlanticus Berland
	Thanatus frederici Denis
	Thanatus vulgaris (Simon)
Pholcidae	*Artema atlanta* Walckenaer
	Micropholcus fauroti (Simon)
	Smeringopus pallidus (Blackwall)
Pisauridae	*Perenethis simoni* (Lessert)
Salticidae	*Bianor albobimaculatus* (Lucas)
	Bianor marionis Schmidt & Krause
	Bianor pulchellus Wesolowska & van Harten
	Bianor simplex (Blackwall)
	Dendryphantes sedulus (Blackwall)
	Euophrys sp.
	Hasarius adansoni (Audouin)
	Hyllus dubius (Wesolowska)
	Luxuria lympliatica Wesolowska
	Menemerus bivittatus (Dufour)

	Pellenes sp.
	Phlegra bifurcata Schmidt & Piepho
	Plexippus lepidus (Blackwall)
	Stenaelurillus nigricauda Simon
	? sp. 1
	? sp. 2
Scytodidae	*Scytodes fusca* Walckenaer
	Scytodes major Simon
	Scytodes velutina Heineken & Lowe
Selenopidae	*Selenops radiatus* Latreille
Tetrablemmidae	gen. indet.
Theridiidae	*Anelosimus aulicus* (C.L. Koch)
	Argyrodes argyrodes (Walckenaer)
	Argyrodes scapulatus Schmidt & Piepho
	Coleosoma floridanum Banks
	Coleosoma africanum Schmidt & Krause
	Latrodectus cinctus Blackwall
	Latrodectus geometricus C.L. Koch
	Latrodectus geometricus "black"
	Latrodectus pallidus (O.P. Cambridge)
	Nesticodes rufipes (Lucas)
	Paidiscura dromedaria (Simon)
	Steatoda fallax (Blackwall)
	Steatoda quinquenotata (Blackwall)
	Steatoda sagax (Blackwall)
	Theridion musivivoides Schmidt & Krause
	Theridion luteitarsis Schmidt & Krause
	Theridion sp.
	Tidarren chevalieri (Berland)
Thomisidae	*Misumenops spinulosissimus* (Berland)
	Thomisus citrinellus Simon
	Thomisus hilarulus Simon
	Thomisus machadoi Comellini
	Xysticus blackwalli Roewer
Uloboridae	*Uloborus gnavus* (Blackwall)
	Uloborus luteolus (Blackwall)
	Uloborus plumipes Lucas
	Uloborus rufus Schmidt & Krause
	Zosis geniculatus (Olivier)
Zodariidae	*Zodarion* sp.

TABLE 2

Faunistic composition of the Cape Verdean spiders

(+ = Canary Islands, o = Madeira, x = Açores, 1) = cosmopolitan or circumtropical species, 2) = species of the Afrotropical region, 3) = Makaronesian species, 4) = synanthropic species)

Afraranea rufipalpis 2) (Tropical Africa, South Africa)
A. triangula 2) (Tropical Africa)
Anelosimus aulicus + o (Central Europe, Mediterranea, North Africa-Middle East)
Arctosa variana (Mediterranea)
Argiope sector 2) (Tropical Africa, Yemen)
Argyropes argyropes + o (Mediterranea, West Africa, Seychelles)
Artema atlanta 1) 4)
Bianor albobimaculatus (Mediterranea)
B. pulchellus 2) (Yemen)

Cheiracanthium furculatum 2) (West Africa)
C. mildei x 4) (Northern temperate zones of the world)
Coleosoma floridanum 1)
Cyclosa insulana + o (Mediterranea, Australia)
Cyrtophora citricola + o (Old World)
Drassodes assimilatus + 3)
Ebo patellidens + (North Africa - Israel)
Hasarius adansoni + 1) 4)
Hersiliola simoni (Mediterranea, Nigeria, Iraq)
Heteropoda venatoria 1) 4)
Latrodectus cinctus 2) (Tropical Africa, South Africa)
L. geometricus 1) 4)
L. geometricus "black" 2) (Tropical Africa, South Africa)
L. pallidus (Libya - Turkmenia)
Loxosceles rufescens + o 1) 4)
Lycorma ferox + (Mediterranea)
Luxuria lymphatica 4) (Cape Verde Islands)
Menemerus bivittatus + (?) 1) 4)
Micropholcus fauroti 1) 4)
Neoscona moreli (Tropical Africa, Antilles)
N. subfusca + o (Mediterranea - whole Africa)
Nephila senegalensis senegalensis 2) (West Africa)
Nesticodes rufipes + o x 1) 4)
Oecobius annulipes + o x 1) 4)
Orchestina pavesii + (Mediterranea)
Paidiscura dromedaria + (Mediterranea, Yemen)
Pararaneus spectator 2) (Niger, Sudan, Yemen, Somalia, Ethiopia, Mozambique, Zaire, Congo, Tansania, Kenia, Malawi, South Africa)
Perenethis simoni 2) (West-, Middle, East Africa, Comoro Islands)
Peucetia viridis (Mediterranea, West Africa)
Scytodes fusca 1) 4)
S. major (North Africa, Senegal, Equatorial Guinea)
S. velutina (Mediterranea, Africa, Arabia)
Selenops radiatus 4) (Mediterranea, Africa, India, Burma)
Sueringopus pallidus 1) 4)
Stenaelurillus nigricauda + 2) (Senegal)
Thanatus vulgaris + o (Northern temperate zones of the world)
Theridion nusivivoides 4) (Cape Verde Islands)
Thomisus citrinellus (Mediterranea - South Africa, Seychelles)
T. lilacinus + (Mediterranea)
Tidarren chevalieri + 3) 4)
Uloborus plumipes + (Old World)
Uroctea paivai + 3)
Zosis geniculatus + o 1) 4)

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